

IN THE CLAIMS:

It is proposed that claim 14 be amended herein. Claims 3, 6 through 10, 13, 16, 18 through 24, and 29 through 32 were previously canceled. It is proposed that claims 16, 25 through 28, and 33 through 38 be canceled herein. Please note that all claims currently pending and under consideration in the referenced application are shown below. Please enter these claims as amended. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Previously presented) A method for forming an isolation structure for a semiconductor device, comprising:
depositing a dielectric material onto a semiconductor substrate;
depositing a buffer material onto the dielectric material;
removing a portion of the buffer film material, a portion of the dielectric material, and material from the semiconductor substrate to form at least one trench extending into the semiconductor substrate, the trench including at least one side wall;
forming an oxide on exposed portions of the semiconductor substrate within the trench;
removing a portion of the buffer material to reduce a thickness of the buffer material and laterally recess a side wall defined by the buffer material relative to a side wall defined by the dielectric material and relative to a side wall of the at least one trench;
applying isolation material to remaining buffer material, in contact with a portion of the dielectric material exposed laterally adjacent to the side wall of the at least one trench, and filling the at least one trench;
removing portions of the isolation material from the remaining buffer material; and
removing the remaining buffer material to exposed side walls of at least one isolation structure protruding from the dielectric material and located laterally beyond corresponding side walls of the at least one trench.

2. (Previously presented) The method of claim 1, wherein forming the oxide includes thermally oxidizing portions of the semiconductor substrate exposed within the at least one trench.

3. (Canceled).

4. (Previously presented) The method of claim 1, wherein removing the portion of the buffer material includes reducing a thickness of the buffer material remaining on the dielectric material.

5. (Previously presented) The method of claim 1, further including annealing the isolation material, the dielectric material, and the oxide.

6. through 10. (Canceled).

11. (Previously presented) A method for forming a capped shallow trench isolation structure for a semiconductor device, comprising:
applying a dielectric material to a semiconductor substrate;
applying buffer material to the dielectric material;
etching through the buffer material, through the dielectric material, and into the semiconductor substrate to define at least one trench in the semiconductor substrate;
forming an oxide on side walls and a bottom of the at least one trench in the semiconductor substrate;
laterally recessing at least one side wall of the buffer material to expose portions of an upper surface of the dielectric material adjacent to an upper edge of the at least one trench while an upper surface of the buffer material is exposed;
applying isolation material to the buffer material, exposed portions of the upper surface of the dielectric material, and the oxide, the isolation material substantially filling the at least one trench;

removing portions of the isolation material layer above the buffer material;
removing remaining buffer material; and
etching the isolation material to form a capped shallow trench isolation structure with side walls that are located laterally beyond corresponding side walls of the at least one trench.

12. (Previously presented) The method of claim 11, wherein forming the oxide includes thermally oxidizing material of the semiconductor substrate at the side walls of the at least one trench.

13. (Canceled).

14. (Currently amended) The method of claim 11, ~~wherein laterally recessing at least one side wall of the buffer material to expose portions of an upper surface of the dielectric material adjacent to an upper edge of the at least one trench comprises~~ further comprising removing material from an upper surface and side walls of the buffer material to laterally recess the at least one side wall while reducing a thickness of the buffer material while laterally recessing the at least one side wall of the buffer material.

15. (Previously presented) The method of claim 11, further comprising annealing the isolation material, the dielectric material, and the oxide.

16. (Canceled).

17. (Previously presented) The method of claim 16, wherein the ledges extend about 50 and 150 Å over the upper surface of dielectric material.

18. through 52. (Canceled).